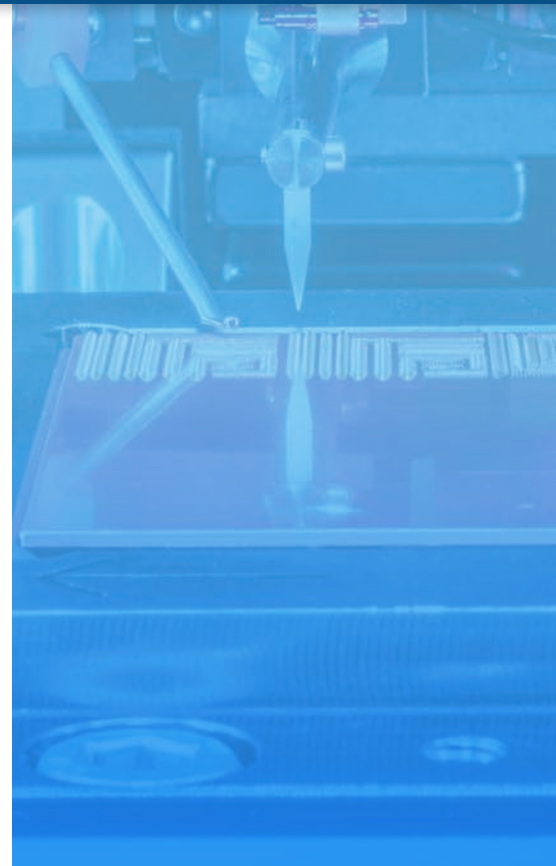
Making the connected world possible™

# PALOMAR 8000i

WIRE BONDER • BALL (STUD) BUMPER

Complex, high-mix automated production for wire bonding & ball bumping

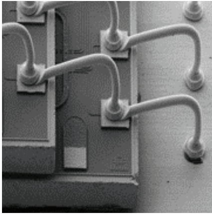


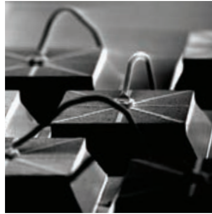
www.PalomarTechnologies.com

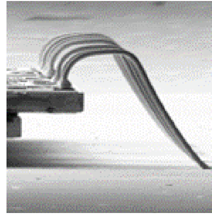
# PALOMAR 8000i

WIRE BONDER • BALL (STUD) BUMPER

A fully automated thermosonic high-speed, ball-and-stitch wire bonder capable of ball bumping, stud bumping, wafer bumping, chip bumping, and customized looping profiles. Well suited for many aspects of packaging and component assembly, including complex hybrids, MCMs, and high-reliability devices.







**VISIONPILOT® WITH RADAR REFERENCING®**
Utilizes advanced geometric pattern matching technology to reliably and accurately locate parts that are randomly oriented or have greyscale variations by using a set of boundary curves that are not tied to a traditional pixel-grid.

**INTELLIGENT INTERACTIVE GRAPHICAL INTERFACE®**
Supports advanced wire bond control through an intuitive interface that simplifies programming and provides real time graphical feedback to the user of bonding performance

**BOND DATA MINER™**
A comprehensive and centralized data management and analysis system that provides machine and process trend monitoring for increased yields and predictive maintenance.

- **VisionPilot®**
  VisionPilot with Radar Referencing pattern recognition software to maximize throughput

- **Bond Data Miner**
  An all-inclusive and centralized data management and analysis system that is a powerful tool to improve yield and machine utilization

- **I2Gi® Software**
  Designed to enable technicians to work smarter, faster and with more control

- *NEW* **Palomar Vision Standardization™**
  Standardizes the vision system across bonding platforms, allowing for seamless transfer of programs between systems

- **Industry 4.0**
  Engineered to enable Industry 4.0 communications

- **Process Control**
  Assign control limits for deformation & bond height

- **Service Contract**
  Achieve maximum ROI by adding a service contract complete with preventative maintenance visits

- **Tailless Bump Mode**
  Enhanced bump modes to customize bump formation

- **Tall Multi-Level Bonding**
  >12.7mm, >0.50 in

- **Adaptive Bond Deformation**
  Control algorithm that narrows range of variation for ball & stitch bonds

- **True Orthogonal Bonding**
  To consistently produce high quality bonds at varying surface heights over a 20 mm (0.78 in.) range through the patented Zr / Zi bondhead

- **Optional In-line Conveyor**
  In-line conveyor for volume production

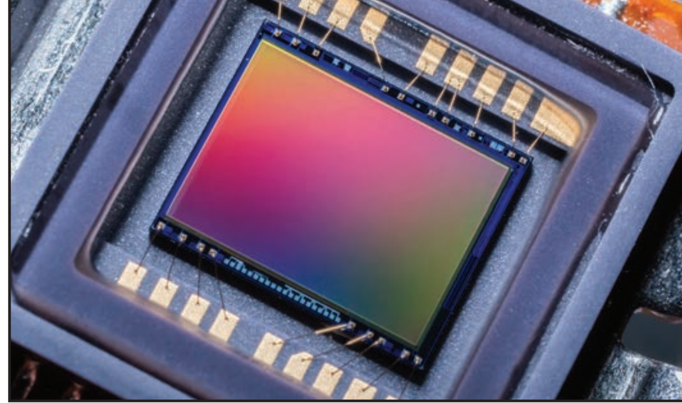
- **Magazine Feeder**
  Magazine feeder keeps your process flowing

- **Offline Programming**
  Maximize machine utilization

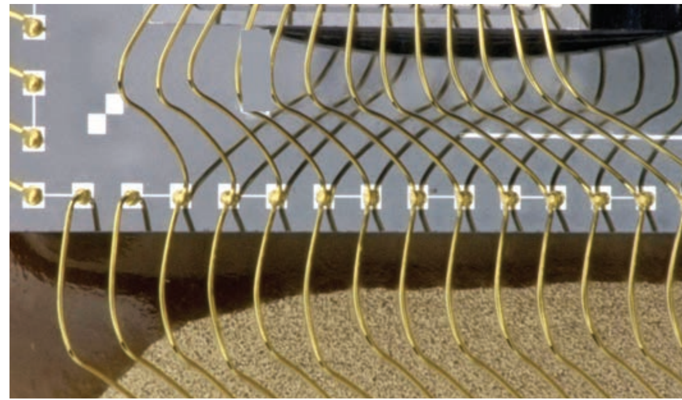
## TYPICAL APPLICATIONS

- Large complex hybrids
- Optoelectronic packaging
- System in packages (SiPs)
- Automotive assemblies
- Multi-chip modules (MCMs)
- LEDs with running stitch
- HB/HP LED arrays
- Chip-on-board (COB)
- Specialty lead frames
- Flex circuits
- Fine pitch devices

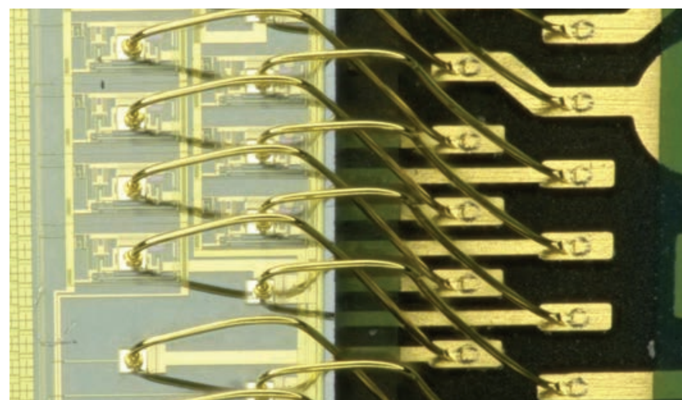
| STAGES & HANDLING | SOFTWARE | ACCESSORIES |
|---|---|---|
| • Heated Stages:<br>- 6" x 4" (152.4 x 101.6 mm)<br>- 6" x 6" (152.4 x 152.4 mm)*<br>- 6" x 10" (152.4 x 254 mm)<br>- 6" x 12" (152.4 x 304.8 mm)<br>- 8" x 8" (203.2 x 203.2 mm)*<br>- 8" x 12" (203.2 x 304.8 mm)<br>• Heated Wafer Stage<br>• Dual Heated Wafer Stage<br>• Variable Wafer Stage<br>• Custom Stages<br>• Conveyors<br>• Magazine Feeders | • Adaptive Bond Deformation<br>• Part Mapping<br>• Process Controller<br>• TAB Software<br>• Offline Programming<br>• RAM Stats Software<br>• Chain Bonding<br>• Auto Focus<br>• Auxiliary Wire<br>• Tailless Bump Mode<br>• Auto Bond Set Layout<br>• V-Bond<br>• SECS/GEM | • Ultrasonic Monitor<br>• Wire Bonder Spare Parts Kit<br>• Coil Heater<br><br>*Wafer Stages |



| PERFORMANCE AND SPECIFICATIONS | | |
|---|---|---|
| **Cycle Times** | 0.125 sec/wire | 0.077 sec/bump |
| **Bond Type** | Thermosonic ball and wire bonding, ball bumping | |
| **Wire Pitch** | 50 µm (0.0019") using 20 µm (0.00078") wire | |
| **Repeatability** | +/- 2.5 µm, 3σ | |
| **Deep Access Capillary** | **Standard:** 11.10 mm (0.437") **Optional:** 11.94 mm (0.470") / 15.88 mm (0.625") **/** 19.05 mm (0.750") | |
| **Bond Area** | 304.8 x 152.4 mm (12" x 6") | |
| **Wire** | **Spool Size** (diameter)*:* 50.8 mm (2") double flanged spool<br>**Wire Diameter:** 17.8 to 50.8 µm (0.7 to 2.0 mil) | |

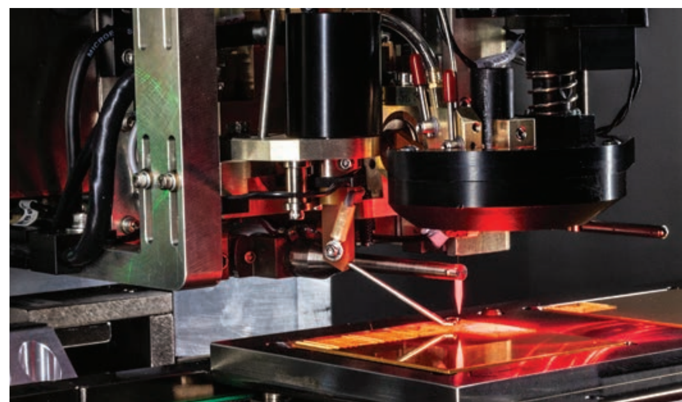


| MOTION SYSTEM | PATTERN RECOGNITION |
|---|---|
| **Resolution:** 0.10 µm X/Y axis | **Vision System:** Cognex® Series 8500 |
| **Control system:** Linear motor/encoder (X/Y), voice coil/encoder (Z linear / Z rotary), Servo EFO/encoder | **PR Theta:** +/- 7° from taught angle<br>**VisionPilot™:** +/- 180° from taught angle<br>**Focus Range (Depth of Focus):** Programmable focus across 15.24 mm (0.600") - focal lens floats on Z linear axis |
| **Z Axis Stroke:** 20 mm (0.80") | **Capture Range:** 760-1300 µm (30-50 mils), magnification dependent |



| HARDWARE AND FACILITY REQUIREMENTS | |
|---|---|
| **Power** | 200, 208, 220, or 240 VAC, 50/60 Hz 30A, Single Phase, Transient free conditioned power |
| **Vacuum** | -25 inHg (85 kPa) |
| **Air at Bonder Inlet** | ***CDA:*** 60 psig @ 4 SCFM |
| **Dimensions** | Height: 1,778 mm (70") Footprint: 800 x 953 mm (31.5" x 37.5") |
| **Weight** | 1,800 lbs. (816.47 kg) |
| **Flooring** | 102 mm (4") Thick concrete continuous slab |

Technical Specifications are subject to change.



Making the connected world possible™

Making the connected world possible by delivering a Total Process Solution™ for advanced photonic and microelectronic device assembly processes utilized in today's smart, connected devices. With a focus on flexibility, speed, and accuracy, Palomar's Total Process Solution includes die bonders, wire and wedge bonders, vacuum reflow systems, along with Innovation Centers for outsourced manufacturing and assembly, and Customer Support services, that together deliver improved production quality and yield, reduced assembly times, and rapid ROI.

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